# 5.0 CONCLUSIONS AND RECOMMENDATIONS

## 5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS

The conclusions and recommendations presented in this section are those of the environmental staff of the FERC. These conclusions and recommendations were developed with input from the COE, the WDOE, and the WDFW as cooperating agencies in the preparation of this EIS. However, these agencies will present their own conclusions and recommendations as part of their permit decisions.

The FERC staff has determined that construction and operation of the Capacity Replacement Project and the associated abandonment activities would result in limited adverse environmental impacts. These limited impacts would be most significant during the period of construction. This determination is based on a review of the information provided by Northwest and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; and contacts with federal, tribal, state, and local agencies, and individual members of the public. The FERC staff has concluded that if the project is constructed and operated in accordance with applicable laws and regulations, Northwest's proposed mitigation, and the FERC staff's additional mitigation recommendations, it would be an environmentally acceptable action. Although many factors were considered in this determination, the principal reasons are:

- 99 percent of the proposed loops would be within or adjacent to Northwest's existing right-of-way and 93 percent of the proposed loops would be within Northwest's existing permanent easement;
- Northwest would abandon the existing 26-inch-diameter pipeline in place in the locations along the non-looped portions of its system, which would eliminate disturbance to 188.5 miles of the right-of-way with the exception of the activities that would occur to isolate the 26-inch-diameter pipeline from other system components;
- Northwest would submit documentation of concurrence from the WDOE that the project is consistent with the Washington CZMP before construction;
- the project would be consistent with or in conformance with all identified comprehensive plans and critical areas ordinances;
- Northwest would implement the FERC staff's Plan and Procedures; its ECR Plan; SPCC Plan; HDD Plan; Groundwater Monitoring and Mitigation Plan; Mitigation Plan for Waterbody Crossings; and Residential Area Work Plans for the Deer Park, Saddleback, and Lake of the Woods Subdivisions to protect natural resources and residential areas during construction and operation of the project;
- use of the HDD method would avoid disturbances to the beds and banks of the North Fork Nooksack, North Fork Stillaguamish, and South Fork Stillaguamish Rivers and associated wetlands/riparian areas. If the HDD method fails and the alternative wet open-cut method were used to cross these waterbodies, the short-term impact of a wet open-cut crossing would be environmentally acceptable;
- Northwest would implement approved waterbody crossing and compensatory wetland mitigation plans to minimize and compensate for unavoidable stream and wetland impacts;

- the appropriate consultations with the FWS, NOAA Fisheries, the SHPO, Fort Lewis, and Native American tribes, and any appropriate compliance actions resulting from these consultations, would be completed before Northwest would be allowed to begin construction in any given area; and

- an environmental inspection and compliance monitoring program would ensure compliance with all mitigation measures that become conditions of certification.

In addition, the FERC staff developed specific mitigation measures to further reduce the environmental impact that would otherwise result from construction of the project. The FERC staff is recommending that these mitigation measures be attached as conditions to any authorization issued by the Commission. These mitigation measures are presented in section 5.4.

## 5.2 ALTERNATIVES CONSIDERED

The No Action or Postponed Action Alternative was considered. If the FERC were to deny or postpone action on Northwest's application, Northwest would not be able to comply with the DOT's CAO unless it were to replace the entire existing 26-inch-diameter pipeline with a new 26-inch-diameter pipeline according to the phased schedule outlined in the CAO. The entire 26-inch-diameter pipeline could be replaced without obtaining a FERC Certificate if Northwest were to either phase its construction into multiple, small projects that would remain within the provisions of Title 18 CFR Part 2.55[1] of the FERC's regulations or replace the entire 268 miles under those provisions.

However, if Northwest were to replace the 26-inch-diameter pipeline under Title 18 CFR Part 2.55 of the FERC's regulations, it would still need to obtain other federal, state, and local approvals. The cumulative environmental impact of a phased replacement of the entire 268 miles of 26-inch-diameter pipeline over a 10-year period would be greater than the impact of the 79.5-mile-long Capacity Replacement Project because it would involve more than three times the length of right-of-way and would be constructed in more than 1 year. Therefore, the likely outcome of the FERC, the COE, the WDOE, and the WDFW denying or postponing action on Northwest's applications for the Capacity Replacement Project would be the replacement of the entire 26-inch-diameter pipeline causing greater environmental impacts. Alternatively, if Northwest were to abandon the 26-inch-diameter pipeline without replacing its capacity, Northwest would not be able to meet its contractual obligations and Washington would lose a significant amount of its natural gas supply.

Northwest is currently the sole provider of interstate natural gas in the Interstate 5 corridor in western Washington. If Northwest could not meet its delivery contracts, its customers would likely seek natural gas from other sources. This could necessitate the construction of additional and/or new pipeline facilities in other locations (system alternatives) to transport natural gas to the markets Northwest serves. If other new natural gas pipeline facilities are approved and constructed, each project would result in specific environmental impacts that could be less than, similar to, or greater than those associated with the current proposal.

An insufficient supply of natural gas could cause many of Northwest's customers to use other fossil fuels, such as coal or oil, for its energy supplies. Compared to other fossil fuels, natural gas is a

[1] Title 18 CFR Part 2.55 includes (a) auxiliary installations and (b) replacement of facilities. Auxiliary installations are defined as installations (excluding gas compressors) that are merely auxiliary or appurtenant to an authorized or proposed transmission pipeline system and are installations only for the purpose of obtaining more efficient or more economical operation of the authorized or proposed transmission facilities (e.g., valves; drips; pig launchers and receivers; yard and station piping; cathodic protection equipment; gas cleaning, cooling, and dehydration equipment; residual refining equipment; water pumping, treatment, and cooling equipment; electrical and communication equipment; and buildings). Replacement of facilities is defined as facilities that constitute the replacement of existing facilities that have or will soon become physically deteriorated or obsolete, to the extent that replacement is deemed advisable.

relatively clean and efficient fuel. Combustion of fuels, such as oil or coal, can generate 60 to 110 percent more $CO_2$ than natural gas. Other emissions from oil or coal combustion, including greenhouse gases, are also significantly higher than those from natural gas. The use of other fossil fuels in place of natural gas would not only increase atmospheric pollution, but would also result in secondary impacts associated with production (e.g., coal mining and oil drilling), transportation (e.g., oil tankers, rail cars, and pipelines), and refining.

Alternatives involving the use of other existing pipeline systems were evaluated. However, because Northwest is the sole provider of interstate natural gas in the western Washington area, there are no other companies or existing systems that could meet Northwest's contractual delivery requirements without constructing significant new transmission facilities.

Northwest system alternatives including new pipeline corridor alternatives and alternative configurations of the Northwest system were evaluated. Because of the significant advantages afforded by collocating with Northwest's existing corridor, the FERC staff eliminated an alternative using a new pipeline corridor from further consideration.

Alternative configurations of the Northwest system evaluated included permanently returning the existing 26-inch-diameter pipeline to service, like-kind replacement of the 26-inch-diameter pipeline, a pipeline looping-only alternative, compression-only alternatives, alternative pipeline sizes, alternative pipeline loop locations, replacement of the 26-inch-diameter pipeline with the 36-inch-diameter loop in the same trench, use of the existing 30-inch-diameter pipeline, inserting a liner or smaller pipe inside the existing 26-inch-diameter pipeline, and a no turn back capacity alternative. These alternatives were found to either be infeasible or not environmentally preferable to the proposed action.

Northwest's standard design calls for installation of the new loops at a 20-foot offset to the east of the existing 30-inch-diameter pipeline. Several non-standard parallel offsets and three minor route variations from the existing 30-inch-diameter pipeline that are proposed by Northwest were analyzed to determine whether they would be environmentally preferable to a route adjacent to Northwest's existing 30-inch-diameter pipeline. All of these offsets and minor route variations were determined to be warranted and environmentally acceptable.

As part of the Capacity Replacement Project, Northwest has proposed to retain as much of the existing 26-inch-diameter pipeline in place as possible for potential future use. Because removing the 26-inch-diameter pipeline in the 188.5-mile-long unlooped portion of Northwest's existing 268-mile-long system would result in significant environmental impact, it was not determined to be environmentally preferable to abandoning the existing 26-inch-diameter pipeline in place.

Alternative construction methods were evaluated, including the use of an HDD to avoid residential impacts on the Deer Park Subdivision on the Snohomish Loop. This alternative was found to be neither a technically feasible nor environmentally preferable alternative. Northwest has filed a Residential Area Work Plan for the Deer Park Subdivision. Alternatives to avoid the use of the proposed temporary extra workspaces, access road, and an expanded aboveground facility site in the Saddleback Subdivision on the Snohomish Loop were also evaluated. In some cases, these alternatives were either not technically feasible, resulted in more overall disturbance, and/or would merely shift impacts from one set of landowners to another. However, based on a June 22, 2005 site visit, the FERC staff believes Northwest's proposed temporary extra workspaces in this area could be reduced and reconfigured to avoid the subdivision's well and minimize tree clearing. The FERC staff has recommended that Northwest file a Residential Area Work Plan for the Saddleback Subdivision for review and approval before construction in this area. Alternatives to minimize impacts on landowners in the Lake of the Woods Subdivision were also evaluated. The FERC staff reviewed this area on June 22, 2005 and

believes Northwest could reconfigure some of the temporary extra workspaces on these landowners' properties to minimize impacts. The FERC staff has recommended that Northwest file a Residential Area Work Plan for the portion of the Lake of the Woods Subdivision between MPs 1389.4 and 1389.6 for review and approval before construction in this area.

The use of the wet open-cut method at the North Fork Nooksack River, North Fork Stillaguamish River, and South Fork Stillaguamish River was evaluated if the proposed HDD crossings fail. The use of the aerial span method at Pilchuck Creek and the Nisqually River was evaluated if the proposed wet open-cut crossing method is not approved at these two waterbodies and no other underground options are available. Northwest has filed site-specific crossing plans for the proposed and alternative crossing methods for the North Fork Nooksack River, Pilchuck Creek, North Fork Stillaguamish River, South Fork Stillaguamish River, and the Nisqually River. Northwest has also filed a draft Mitigation Plan for Waterbody Crossings. Northwest is still in the process of consulting with other federal, state, and local agencies and applicable Native American tribes to finalize its site-specific waterbody crossing plans and additional mitigation requirements that should be included in its Mitigation Plan for Waterbody Crossings. The FERC staff believes these continued consultations will result in the development of acceptable site-specific crossing plans and mitigation requirements for the waterbodies that would be crossed by the Capacity Replacement Project. These final plans would incorporate new information that may become available as Northwest continues consultations with the COE, the WDOE, the WDFW, various county agencies, and Native American tribes. The FWS and NOAA Fisheries may impose additional mitigation as well as part of their Biological Opinions that also should be included in Northwest's Mitigation Plan for Waterbody Crossings. The FERC staff has recommended that Northwest file any revised site-specific waterbody crossing plans and the final Mitigation Plan for Waterbody Crossings with the Secretary for the review and written approval of the Director of OEP before construction at each applicable waterbody.

## 5.3 IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES; SHORT- AND LONG-TERM USES OF THE ENVIRONMENT

The major nonrenewable resources that would be consumed by the proposed project are fossil fuels used to power construction vehicles and, over the life of the project, the pipeline itself. Theoretically, the pipeline components could be reclaimed at the end of the pipeline's operational life. However, there would be a number of irretrievable resources committed to the proposal if the necessary authorizations are granted. The primary resources irretrievably lost would include the following:

- soils (water and wind erosion could occur in disturbed areas);
- crop production (crops are generally lost or reduced for one season; however, in the case of orchards and tree plantations, the impacts would be permanent because the crop would be restricted from growing over the permanent easement);
- land use (aboveground facilities and permanent access roads would replace grassland/herbaceous, shrubland, deciduous forest, and landscape cover types for the life of the project);
- special status species (mortalities could occur during construction, and right-of-way maintenance activities would result in the permanent loss of forest habitat);
- vegetation (right-of-way maintenance activities would result in the permanent conversion of forest, riparian, and shrubland cover types);

- visual resources (the loss of forest vegetation, the presence of aboveground facilities, and aerial spans across waterbodies would permanently affect viewsheds);

- wildlife habitat (right-of-way maintenance activities would result in the permanent loss of forest, riparian, and shrubland habitats); and

- wetlands (right-of-way maintenance would result in the permanent conversion of forested and scrub-shrub wetland types, and the construction of aboveground facilities would result in permanent fill placed in wetlands).

Northwest has been required by the DOT to develop a plan to replace its existing 26-inch-diameter pipeline over a period of 10 years. Northwest could do so by implementing a "like-kind" replacement (i.e., construct 268 miles of 26-inch-diameter pipeline) or by constructing a new pipeline to meet capacity needs and abandoning the 26-inch-diameter pipeline. Northwest has designed the Capacity Replacement Project to replace the majority of the delivery capacity of the 268-mile-long, 26-inch-diameter pipeline by constructing only 79.5 miles of new pipeline, modifying five existing compressor stations, and abandoning the majority of the 26-inch-diameter pipeline in place. This proposal would eliminate disturbance to 188.5 miles of the right-of-way and allow Northwest to address the DOT's abandonment requirement for the entire pipeline in one project that would take less than 1 year rather than spread over a 3- to 10-year period. It has been determined that Northwest's proposed action would be environmentally preferable to any of the feasible alternatives and the FERC staff has concluded that it would result in limited adverse environmental impacts. While the losses described above would occur, they would be minimized and compensated for by Northwest's mitigation plans and the FERC staff's recommendations. For these reasons, the FERC staff considers the irreversible and irretrievable resource commitments to be acceptable.

## 5.4 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission authorizes the Capacity Replacement Project, the FERC staff recommends that the following measures be included as specific conditions in the Commission's Order. The FERC staff believes that these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed project.

1. Northwest Pipeline Corporation (Northwest) shall follow the construction procedures and mitigation measures described in its applications, supplemental filings (including responses to staff data requests), and as identified in the environmental impact statement (EIS), unless modified by this Order. Northwest must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary of the Commission (Secretary);
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of the Office of Energy Projects (OEP) **before using that modification**.

2. The Director of OEP has delegation authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the project. This authority shall allow:

    a. the modification of conditions of this Order; and

b. the design and implementation of any additional measures deemed necessary (including stop work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.

3. **Prior to any construction,** Northwest shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors (EIs), and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.

4. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets and shall include the staff's recommended facility locations, if any. **As soon as they are available, and before the start of construction,** Northwest shall file with the Secretary revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

   Northwest's exercise of eminent domain authority granted under Natural Gas Act (NGA) section 7(h) in any condemnation proceedings related to this Order must be consistent with these authorized facilities and locations. Northwest's right of eminent domain granted under NGA section 7(h) does not authorize it to increase the size of its natural gas pipeline to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Northwest shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by the Upland Erosion Control, Revegetation, and Maintenance Plan or minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

   Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

   a. implementation of cultural resources mitigation measures;
   b. implementation of endangered, threatened, or special concern species mitigation measures;
   c. recommendations by state regulatory authorities; and
   d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **At least 60 days before the anticipated start of construction,** Northwest shall file an initial Implementation Plan with the Secretary for the review and written approval of the Director of OEP describing how Northwest will implement the mitigation measures required by this Order. Northwest shall also submit this plan to the Washington State Department of Ecology (WDOE) and the Washington Department of Fish and Wildlife (WDFW). Northwest must file revisions to the plan as schedules change. The plan shall identify:

   a. how Northwest will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
   b. the number of EIs assigned per spread and aboveground facility site, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
   c. company personnel, including EIs and contractors, who will receive copies of the appropriate materials;
   d. what training and instructions Northwest will give to all personnel involved with construction and restoration (initial and refresher training as the project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
   e. the company personnel (if known) and specific portion of Northwest's organization having responsibility for compliance;
   f. the procedures (including use of contract penalties) Northwest will follow if noncompliance occurs; and
   g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

      i. the completion of all required surveys and reports;
      ii. the mitigation training of onsite personnel;
      iii. the start of construction; and
      iv. the start and completion of restoration.

7. Northwest shall file updated status reports with the Secretary on a **biweekly** basis **until** all construction-related activities, including restoration, are complete. These status reports shall also be provided to the U.S. Army Corps of Engineers (COE); the WDOE; the WDFW; and other federal, state, and local agencies with permitting responsibilities upon request. Status reports shall include:

   a. the current construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
   b. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) or the third-party compliance monitor(s) during the reporting period (both for the conditions imposed by the FERC and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
   c. corrective actions implemented in response to all instances of noncompliance, and their cost;
   d. the effectiveness of all corrective actions implemented;
   e. a description of any landowner/resident complaints that may relate to compliance with the requirements of this Order, and the measures taken to satisfy their concerns; and

f. copies of any correspondence received by Northwest from other federal, state, or local permitting agencies concerning instances of noncompliance, and Northwest's response.

8. Northwest must receive written authorization from the Director of OEP **before commencing** service for each component of the project. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way is proceeding satisfactorily.

9. **Within 30 days of placing the certificated facilities in service,** Northwest shall file an affirmative statement with the Secretary, certified by a senior company official:

a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
b. identifying which of the Certificate conditions Northwest has complied with or will comply with. This statement shall also identify any areas along the right-of-way where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

10. Northwest shall file documentation of concurrence from the WDOE that the project is consistent with the Washington Coastal Zone Management Program with the Secretary **before construction.**

11. Northwest shall prepare a revised Erosion Control and Revegetation Plan (ECR Plan) that includes the following tasks in the list of EI responsibilities:

a. evaluating the source of any imported fill and ensuring that it meets the standards for clean fill as defined in the Solid Waste Handling Standards for Washington State, Chapter 173-350-100 of the Washington Administrative Code;
b. identifying areas of arsenic contamination along the right-of-way and ensuring that arsenic-contaminated soils are handled in compliance with federal, state, and local safety and environmental regulations;
c. implementing guidelines to ensure that equipment is washed before entering waterbodies and traveling on public roadways and to ensure that roadways are swept at the end of the work day if necessary;
d. ensuring the repair of all ineffective temporary erosion control measures as soon as possible but not longer than 24 hours after identification and requiring the repairs to be completed immediately if discharges of turbid water or other pollutants are occurring; and
e. determining the locations where slash or non-merchantable timber would be scattered across the right-of-way to be used for wildlife habitat and the quantities that would be used in consultation with WDFW biologists and landowners.

The ECR Plan shall also be revised to include all of the EI duties listed in section 2.5 of the EIS and state that notification to agencies of construction activities, permit violations, and/or situations where permit requirements need to be altered due to field conditions shall occur as soon as possible but no later than 4 hours after identification of the issue unless handled as a variance through the third-party compliance monitoring program or an alternative agreement with individual compliance agencies is adopted. Northwest shall file the revised ECR Plan with the Secretary for the review and written approval of the Director of OEP **before construction**.

12. Northwest shall file the site-specific ECR Plan for the Fort Lewis Military Reservation (Fort Lewis) and documentation of Fort Lewis' concurrence with the plan with the Secretary **before construction on the military reservation**.

13. Northwest shall file a revised Spill Prevention, Containment, and Countermeasures Plan (SPCC Plan) for activities on Fort Lewis and documentation of Fort Lewis' concurrence with the plan with the Secretary **before construction on the military reservation**.

14. Northwest shall consult with the WDOE and prepare a plan for the discovery and management of contaminated soils, sediments, and groundwater. The plan shall include specific protocols for the testing, handling, and reporting of pre-existing contaminated soils, sediments, and groundwater encountered during construction as well as the contact names and telephone numbers of appropriate state and local agency personnel. The plan and documentation of the WDOE's concurrence with the plan shall be filed with the Secretary **before construction**.

15. Northwest shall file with the Secretary and the WDOE a table and/or figure accurately depicting the location of all wells and springs within 200 feet of the construction work area and proposed mitigation measures to avoid or minimize potential impacts on these wells and springs. Northwest shall file the table and/or figure and proposed mitigation measures with the Secretary and the WDOE, and notify all affected landowners that construction would occur within 200 feet of their well or spring, **at least 60 days before the anticipated start of construction**.

16. Northwest shall prepare a revised SPCC Plan that includes the following measures:

    a. Use equipment with a lower spill potential (e.g., excavators that are operated with cables and counterweights that may have less oil on board).
    b. Power wash or steam clean the equipment before it enters the waterbody. Use no soaps. Washing/cleaning shall occur offsite at an area that is preferably paved and has stormwater treatment.
    c. Develop a check list and inspect equipment before it enters the waterbody. The list shall include a requirement to check:

        i. hydraulic hoses, connections, and rams for wear and leakage;
        ii. lube fittings to ensure that they are wiped clean of excess grease; and
        iii. fill caps to ensure that they are tightly sealed.

    d. Keep only the amount of fuel on board that would be used during the work period.

    The locations of the wash/cleaning areas specified in item b. shall be included in the Implementation Plan (see mitigation measure number 6). Northwest shall file the revised SPCC Plan with the Secretary for the review and written approval of the Director of OEP **before construction**.

17. Northwest shall continue to consult with the COE; the U.S. Fish and Wildlife Service (FWS); the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries); the WDOE; the WDFW; other applicable agencies; and appropriate Native American tribes to finalize its site-specific waterbody crossing plans and mitigation requirements. Northwest shall file any revised site-specific waterbody crossing plans and the final Mitigation Plan for Waterbody Crossings with the Secretary for the review and written approval of the Director of OEP **before construction at each applicable waterbody**.

18. Northwest shall continue to consult with the COE, the WDOE, other applicable agencies, and appropriate Native American tribes to finalize its compensatory wetland mitigation plan. Northwest shall file the final compensatory wetland mitigation plan with the Secretary **before construction**.

19. Northwest shall retain the services of an arborist or registered professional forester to conduct a safety assessment of trees located along the edge of the construction right-of-way that were potentially affected by construction activities and are in close proximity to residences or high use areas. The tree safety assessment shall be conducted **within 10 days of construction on a property**. Northwest shall file a report of the tree safety assessment and a description of any corrective actions implemented with the Secretary **no later than 60 days after placing the facilities in service**.

20. Northwest shall file with the Secretary for the review and written approval of the Director of OEP a copy of the final compensatory mitigation plan for northern spotted owl critical habitat and documentation of the FWS' and Fort Lewis' concurrence with the plan **before construction of the Fort Lewis Loop**.

21. Northwest shall not begin construction activities **until**:

    a. Northwest completes any outstanding species-specific surveys and the FERC receives comments from the FWS and NOAA Fisheries regarding the preconstruction survey reports;
    b. the FERC completes formal consultation with the FWS and NOAA Fisheries; and
    c. Northwest receives written notification from the Director of OEP that construction and/or implementation of conservation measures may begin.

22. Northwest shall file a Residential Area Work Plan for the Saddleback Subdivision that:

    a. includes the provision that Northwest require the contractor to bring equipment into the area off of 238th Avenue fully loaded with fuel so that no refueling would occur within the temporary extra workspace closest to the subdivision's well;
    b. evaluates the feasibility of increasing the setback from the subdivision's well during access to and from the construction work area;
    c. further evaluates the feasibility of reducing and moving the majority of the temporary extra workspace currently proposed on the east side of the construction right-of-way near the subdivision's well to the west side of the construction right-of-way;
    d. further evaluates the feasibility of reducing the temporary extra workspace currently proposed adjacent to the existing aboveground facility to minimize the amount of tree clearing required in the area; and
    e. incorporates a site-specific residential construction mitigation plan that depicts the locations and sizes of all of the proposed temporary extra workspaces in the area.

    Northwest shall file the Residential Area Work Plan for the Saddleback Subdivision with the Secretary for the review and written approval of the Director of OEP **before construction in this area**.

23. Northwest shall file a Residential Area Work Plan for the portion of the Lake of the Woods Subdivision between mileposts (MPs) 1389.4 and 1389.6 that:

a. further evaluates the feasibility of moving the temporary extra workspace currently proposed on the property at MP 1389.6 to the open lawn area adjacent to the property;
b. incorporates a site-specific residential construction mitigation plan that depicts the locations and sizes of all of the proposed temporary extra workspaces in the area, including those for the Colin Creek crossing;
c. includes a request for a variance from the FERC staff's Wetland and Waterbody Construction and Mitigation Procedures for any temporary extra workspace located within 50 feet of Colin Creek; and
d. incorporates Northwest's proposed site-specific mitigation measures to reduce impacts on this area.

Northwest shall file the Residential Area Work Plan for the portion of the Lake of the Woods Subdivision between MPs 1389.4 and 1389.6 with the Secretary for the review and written approval of the Director of OEP **before construction in this area**.

24. Northwest shall file a report of the remedial action completed at each of the 28 sites listed in table 4.8.5-1 of the EIS or documentation of concurrence from the WDOE that no further action is needed with the Secretary **before ground-disturbing activities at these locations**.

25. Northwest shall paint all aboveground piping surfaces and structures associated with the non-collocated pig receivers at MP 1461.8 and 1408.8 and the mainline valves at MPs 1467.9, 1461.8, and 1408.8 to blend with the surrounding landscape and add slats of a compatible color to the fencing around these facilities.

26. Northwest shall defer implementation of any treatment plans/mitigation measures (including archaeological data recovery), construction of facilities, and use of all staging, storage, or temporary work areas and new or to-be-improved access roads **until**:

a. Northwest files with the Secretary and the Washington State Historic Preservation Office (SHPO), and consults with the COE, Fort Lewis, and Native American tribes as applicable, all additional cultural resources survey and evaluation reports and any necessary treatment plans;
b. Northwest files the comments of the SHPO, the COE, Fort Lewis, and Native American tribes as applicable on all cultural resources survey reports and plans; and
c. the Director of OEP reviews all cultural resources survey reports and plans, and notifies Northwest in writing that treatment plans/mitigation measures may be implemented or construction may proceed.

All material filed with the Commission containing **location, character, and ownership information** about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: **"CONTAINS PRIVILEGED INFORMATION - DO NOT RELEASE."**

27. Northwest shall make all reasonable efforts to assure its predicted noise levels from the Chehalis and Washougal Compressor Stations are not exceeded at nearby noise-sensitive areas (NSAs) and shall file noise surveys showing this with the Secretary **no later than 60 days** after placing the modified compressor stations into service. However, if the noise attributable to the operation of either compressor station at full load exceeds the day-night equivalent sound level of 55 decibels of the A-weighted scale at any nearby NSA, Northwest shall file a report on what changes are needed and shall install additional noise controls to meet that level **within 1 year** of the in-service date. Northwest shall confirm compliance with this requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.